

IN THE CLAIMS

1. (Currently amended) An equalizer comprising:
 - a first port for launching a beam of light comprising multiple wavelengths;
 - a dispersive element having a concave surface for dispersing the beam of light into a plurality of sub-beams of light and for focusing each sub-beam of light onto a focal plane thereof; and,
 - a modulator array disposed substantially at the focal plane for receiving the plurality of sub-beams of light and for directing them back to the dispersive element;
 - wherein the modulator array includes a concave surface; and
 - wherein the concave surface of the modulator array has a radius of curvature approximately equal to a focal length of the diffraction grating.
2. (original) The equalizer of claim 1, wherein the dispersive element is an aberration corrected concave diffraction grating.
3. (original) The equalizer of claim 2, wherein the modulator array comprises one of a liquid crystal array, a polymer dispersed liquid crystal array, and a MEMS array.
4. Cancelled
5. (Currently amended) The equalizer of claim [[4]] 1, wherein each modulator of the modulator array is disposed about the concave surface of the modular array to direct the plurality of sub-beams of light back to the diffraction grating.
6. (Currently amended) The equalizer of claim [[4]] 1, wherein the concave surface of the modulator array comprises a concave mirror filled with a polymer dispersed liquid crystal.
7. Cancelled
8. (original) The equalizer of claim 3, wherein the modulator array includes a convex surface.

9. (original) The equalizer of claim 3, wherein the first port is optically coupled to a thermally expanded core optical fiber.

10. (original) The equalizer of claim 3, wherein the first port is coupled to an optical circulator.

11. (original) The equalizer of claim 3, comprising a fold mirror for directing a beam of light transmitted from the diffraction grating to a second port spatially displaced from the first port.

12. (original) The equalizer of claim 11, wherein the first and second ports are optically coupled to input and output waveguides.

13. (original) The equalizer of claim 12, wherein the input and output optical waveguides include thermally expanded core fibers.

14. (currently amended) An equalizer comprising:

a first port for launching a multiplexed beam of light;

an aberration corrected diffraction grating having a concave surface for spatially dispersing the multiplexed beam of light into a plurality of sub-beams of light and focusing each sub-beam of light onto a focal plane thereof;

a modulator array disposed substantially at the focal plane for selectively attenuating each sub-beam of light and reflecting each sub-beam of light back to the diffraction grating for recombination into a single beam of light; and

a second port for receiving the single beam of light;

wherein the modulator array comprises means for controlling a position of light reflection on the diffraction grating.

15. Cancelled

16. Cancelled

17. (currently amended) The equalizer of claim 14 ~~15~~, wherein the first and second ports correspond to first and third ports of a three port optical coupler.

18. (currently amended) A method of attenuation comprising the steps of:
 launching light having multiple wavelength signals;
 diffracting the light and focusing the diffracted light onto a modulator array
using a concave diffraction grating; and
 reflecting the light back to the concave diffraction grating using a modulator
array with a concave surface;
 wherein the concave surface of the modulator array has a radius of curvature
substantially equal to a focal length of the diffraction grating.

19. Cancelled

20. Cancelled

21. Cancelled

22. (new) The equalizer of claim 14, wherein the means for controlling a position
of light reflection on the diffraction grating includes an array of micro-electrical-
mechanical (MEM) mirrors.

23. (new) The equalizer of claim 22, wherein each of the mirrors in the array of MEM
mirrors is rotatable from a position of zero attenuation, in which the mirror reflects a sub-beam
of light substantially back to its original location on the concave diffraction grating.